

What is claimed is:

1. An actuator assembly for a disc drive comprising:
 - 5 a main body having an axis of rotation and an opening therein positioned around the axis of rotation;
 - at least one actuator arm attached to the main body; and
 - a portion of a voice coil motor positioned within the opening of the actuator assembly.
- 10 2. The actuator assembly for a disc drive of claim 1 wherein the voice coil motor further comprises at least two magnets attached to the main body of the actuator arm.
- 15 3. The actuator assembly for a disc drive of claim 1 wherein the voice coil motor further comprises at least two magnets attached to the main body of the actuator arm, wherein the magnets form a rotor of the voice coil motor.
4. The actuator assembly for a disc drive of claim 3 wherein the voice coil
20 motor further comprises a coil about which the rotor rotates.
5. The actuator assembly for a disc drive of claim 1 wherein the voice coil motor further comprises a plurality of magnets attached to the main body of the actuator arm, wherein the orientation of adjacent magnets are substantially
25 orthogonal to one another.
6. The actuator assembly for a disc drive of claim 1 wherein the voice coil motor further comprises a plurality of magnets substantially circularly oriented so

that the magnetic flux outside a perimeter of the circularly orientated magnets is negligible.

7. The actuator assembly for a disc drive of claim 1 wherein the voice coil
5 motor further comprises a plurality of magnets arranged as a Halbach array.

8. The actuator assembly for a disc drive of claim 1 wherein voice coil motor
positioned within the opening of the actuator assembly is positioned near one
end of the actuator assembly and at least one load spring and transducer are
10 positioned at the other end of the actuator assembly.

9. An information handling system comprising:
a base
a yoke attached to the base;
15 a coil attached to the yoke;
a disc rotatably attached to the base; and
an actuator assembly having an opening therein, the actuator assembly
further including at least two magnets positioned near the opening, the magnets and
coil forming a voice coil motor, the actuator assembly capable of swinging through
20 an arc and rotatably attached to the base about the yoke.

10. The information handling system of claim 9 wherein the voice coil motor
further comprises a plurality of magnets attached to the main body of the actuator
assembly, wherein the orientation of adjacent magnets are substantially orthogonal
25 to one another.

11. The information handling system of claim 9 wherein the voice coil motor
further comprises a plurality of magnets substantially circularly oriented so that the
magnetic flux outside a perimeter of the circularly orientated magnets is negligible.

12. The information handling system of claim 11 wherein the voice coil motor further comprises a plurality of magnets arranged as a Halbach array.

5 13. The information handling system of claim 11 wherein the yoke is made of a material capable of absorbing heat.

14. The information handling system of claim 11 wherein the yoke is formed of the same material as the base.

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15. The information handling system of claim 11 wherein the yoke is formed integral with the base.

15 16. The information handling system of claim 11 wherein the yoke is formed integral with the base and wherein the coil is wrapped about the yoke so that the base and the yoke act as a heat sink for heat generated by passing current through the coil.

20 17. The information handling system of claim 9 wherein the voice coil motor produces a first moment about a pivot and a second moment about the pivot, the first moment being substantially offset by the second moment.

18. The information handling system of claim 9 wherein the voice coil motor is a true torque motor.

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19. A disc drive comprising:
a base;
at least one disc rotatably attached to the base;

an actuator assembly rotatably attached to the base, the actuator capable of passing through an arc;

moving means attached to the actuator assembly.

5 20. The disc drive of claim 19 wherein the moving means includes a voice coil motor.

21. The disc drive of claim 19 wherein the moving means further comprises at least two magnets attached to the main body of the actuator arm.

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22. The disc drive of claim 19 wherein the moving means further comprises a coil attached to the base of the disc drive.

15 23. The disc drive of claim 20 wherein the voice coil motor further comprises at least two magnets attached to the main body of the actuator arm, wherein the magnets form a rotor of the voice coil motor.

20 24. The actuator assembly for a disc drive of claim 23 wherein the voice coil motor further comprises a coil about which the rotor rotates.

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24. The actuator assembly for a disc drive of claim 20 wherein the voice coil motor further comprises a plurality of magnets attached to the main body of the actuator arm, wherein the orientation of adjacent magnets are substantially orthogonal to one another.

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25. The actuator assembly for a disc drive of claim 20 wherein the voice coil motor further comprises a plurality of magnets substantially circularly oriented so that the magnetic flux outside a perimeter of the circularly orientated magnets is negligible.

26. The actuator assembly for a disc drive of claim 20 wherein the voice coil motor further comprises a plurality of magnets arranged as a Halbach array.